

REMARKS

The above-identified patent application has been carefully reviewed in view of the Office Action of October 22, 2003. In the Office Action all of the pending claims 1, 3-13 and 15-18 were rejected as being obvious over Dumbaugh Patent No. 4,149,627 in view of Oshima Patent No. 3,659,465. New dependent claims 19-21 have been added to the application. Reconsideration of this application is respectfully requested in view of the amendments above and remarks that follow.

Independent claim 1 was rejected as being obvious over Dumbaugh in view of Oshima. The Office Action states that Dumbaugh discloses a vibratory apparatus with a bed, a plurality of drive springs, and a plurality of inclined stabilizers, but that Dumbaugh lacks the disclosure of multiple pairs of free-wheeling eccentric weights. The Office Action states that Oshima teaches a plurality of motor and weight pairs in a vibratory apparatus that allows for greater conveyor length, that the eccentric weights in Oshima include axes that extend generally perpendicular to the direction the material is to be conveyed, and that it would be obvious to combine the teachings of Oshima with Dumbaugh.

It is respectfully submitted that it would not be obvious to combine Oshima with Dumbaugh to achieve the device as called for in independent claim 1 as amended above. Initially it should be noted that Oshima acknowledges that a plurality of pairs of free-wheeling eccentric weights could not previously be maintained in phase. At column 1, line 21, Oshima states:

Vibrating apparatus comprising a plurality of the rotary type vibration-applying machines have not yet been manufactured. The reason therefore resides in the fact that induction motors have a certain amount of slip with respect to their synchronous speeds so that it is impossible to maintain a predetermined vibration-imparting direction; that is, the rotary positions of the eccentric weights cannot be maintained in synchronism or in phase. . . it has been usual to adapt a system of the type, in which large capacity type

vibration-applying machines of a pair are provided. . . .

Thus Oshima acknowledges that previously only a single pair of rotatable eccentric weights were used in connection with vibratory conveyors.

Figures 4-6 of Oshima show a vibrating trough 1 that is connected to three confronting massive bodies 3 through respective resonant rubber springs 4. A vibration-applying machine 5 is attached to each massive body 3. Each vibration-applying machine 5 includes an induction motor and an eccentric weight attached to an end of the shaft of the motor, such that a circular vibration-applying force is generated. As shown in the drawing figures of Oshima, each of the vibratory motors 5 is spaced apart from one another along the length of the conveyor trough 1, with each vibratory motor being attached to a respective confronting massive body 3. As stated at column 3, line 16, the vibration applying machines in the Oshima invention are rotated in the same direction.

Oshima shows the use of three vibratory motors 5 that are coupled to a conveyor trough 1. Oshima does not disclose the coupling of vibratory motors to a trough in pairs. Oshima does not disclose or teach the use of a first pair of rotatable eccentric weights coupled to the bed of the vibratory conveying apparatus, and a second pair of rotatable eccentric weights coupled to the bed as required in claim 1. The resulting output forces of the rotating eccentric weights in Oshima do not alternately cancel and add to one another as they rotate, as do the paired rotatable eccentric weights in the present invention, in order to provide a combined output force parallel to the line of stroke as required in claim 1.

As shown in Figures 8A-D of the present application, a first pair 12 of rotating eccentric weights 20 rotate in opposite directions relative to one another, and a second pair 14 of rotatable eccentric weights 20 rotate in opposite directions relative to one another. As the eccentric weights 20 of the first pair 12 rotate in synchronism their combined output forces

cancel, add, cancel and then add as shown in the progression of Figures 8A-D. The output forces of the eccentric weights 20 of the second pair 14 combine in the same manner. Similarly, as shown in Figures 15A-D of the present application, the combined output forces of the first pair of rotatable eccentric weights 12 alternately cancel and add to one another, as do the combined output forces of the second pair of rotatable eccentric weights 14. The combined resulting output force of each pair of rotating eccentric weights is generally parallel to the line of stroke as required in claim 1.

In Oshima the vibratory motors 5 generate a circular motion that causes the resonant rubber springs 4 to vibrate the trough. As the vibratory motors 5 are located at respective ends of the bodies 3, the motors 5 will cause the bodies 3 to rock in a "see-saw" manner. The vibratory motors 5 in Oshima are not paired with one another, and the vibratory motors 5 do not provide a resulting combined output force that is generally parallel to the line of stroke as required in independent claim 1.

Neither Oshima nor Dumbaugh teach or suggest anything about pairs of eccentric weights rotatable about a plurality of axes as claimed, much less that such an arrangement will reduce stress or increase durability as indicated in the Office Action. Any advantages from applicant's claimed combination become apparent only after reading applicant's disclosure and the attempt to use those advantages as motivation for the combination of Oshima and Dumbaugh is impermissible hindsight construction (see, e.g., *Grain Processing Corp. v. American Maize Products Co.*, 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988)). In addition, the mere fact that the prior art may be modified in the manner suggested in the Office Action would not make the modification obvious unless the prior art suggested the desirability of the modification (see, *In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783-84 (Fed. Cir. 1992)). Here there is nothing in Oshima and Dumbaugh which would suggest any motivation for, or the desirability

of, their combination as suggested in the Office Action. The Office Action is trying to fashion a combination rejection that does not make a prima facie case of obviousness.

It is respectfully submitted that there is no suggestion or teaching to combine Oshima with Dumbaugh in a manner to achieve the vibratory conveying apparatus as called for in independent claim 1. It is therefore respectfully submitted that independent claim 1 and its dependent claims 3-11 and 20-21 are in condition for allowance.

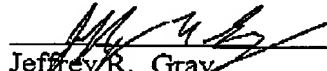
Independent claim 12 was also rejected as being obvious over Dumbaugh in view of Oshima. Independent claim 12 has been amended in the same manner as independent claim 1 to require that the combined resulting output force of the first pair of rotatable eccentric weights is generally parallel to the line of stroke, and the combined output force of the second pair of rotatable eccentric weights is generally parallel to the line of stroke. It is therefore respectfully submitted that independent claim 12 and its dependent claim 13 are in condition for allowance for the reasons set forth above.

Independent method claim 15 was also rejected as being obvious over Dumbaugh in view of Oshima. Independent claim 15 has been amended to require that the combined resulting output force of the first pair of rotatable eccentric weights, and the combined resulting output force of the second pair of rotatable eccentric weights, are each generally parallel to the line of stroke. It is therefore respectfully submitted that independent claim 15 and its dependent claims 16-19 are also in condition for allowance for the reasons set forth above.

Claims 1, 3-13, and 15-21 are pending in this application. These claims are respectfully submitted to be allowable over the cited art for the reasons discussed above. Allowance of these claims is respectfully requested.

Respectfully submitted,

Date: 1-20-04

  
Jeffrey R. Gray  
Registration No. 33,391  
Barnes & Thornburg  
P.O. Box 2786  
Chicago, Illinois 60690-2786  
Direct: (312) 214-4807  
Facsimile: (312) 759-5646

CHDS01 JORAY 200668v1